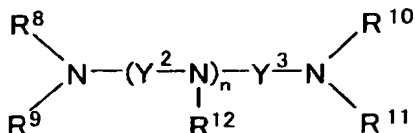


CLAIMS

1. A polishing composition for use in polishing a silicon wafer, the polishing composition characterized by a chelating agent, an alkali compound, silicon dioxide and water, wherein the chelating agent is an acid represented by the following chemical formula:



or a salt thereof, and wherein in the chemical formula, each of Y^2 and Y^3 represents an alkylene group, n is an integer of 0 to 4, each of $4+n$ substituents represented by R^8 to R^{12} is an alkyl group and at least four of the alkyl groups have a phosphonic acid group.

2. The polishing composition according to claim 1, characterized in that the alkylene group is a lower alkylene group having 1 to 4 carbon atoms.

3. The polishing composition according to claim 1 or 2, characterized in that the alkyl group is a lower alkyl group having 1 to 4 carbon atoms.

4. The polishing composition according to any one of claims 1 to 3, characterized in that all the alkyl groups have a phosphonic acid group.

5. The polishing composition according to claim 1, characterized in that the chelating agent contains at least one compound selected from ethylenediaminetetraethylenephosphonic acid, ethylenediaminetetramethylenephosphonic acid, diethylenetriaminepentaethylenephosphonic acid,

diethylenetriaminepentamethylenephosphonic acid,
triethylenetetraminehexaethylenephosphonic acid,
triethylenetetraminehexamethylenephosphonic acid,
propanediaminetetraethylenephosphonic acid and

5 propanediaminetetramethylenephosphonic acid, and ammonium
salts, potassium salts, sodium salts and lithium salts of
these acids.

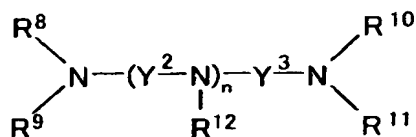
6. The polishing composition according to any one of
10 claims 1 to 5, characterized in that the polishing composition
has a pH of from 8 to 12.

7. The polishing composition according to any one of
claims 1 to 6, characterized in that n in the chemical formula
15 is an integer of 0 to 2.

8. A process for polishing a silicon wafer, the process
characterized by:

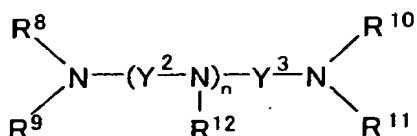
preparing a polishing composition and
20 polishing the surface of the silicon wafer by using the
polishing composition,

wherein the polishing composition includes a chelating
agent, an alkali compound, silicon dioxide and water, wherein
the chelating agent is an acid represented by the following
25 chemical formula:



or a salt thereof, and wherein in the chemical formula, each
of Y² and Y³ represents an alkylene group, n is an integer of
0 to 4, each of 4+n substituents represented by R⁸ to R¹² is an
30 alkyl group and at least four of the alkyl groups have a
phosphonic acid group.

9. A rinsing composition for use in rinsing a silicon wafer, the rinsing composition characterized by a chelating agent, an alkali compound and water, wherein the chelating agent is an acid represented by the following chemical formula:



or a salt thereof, and wherein in the chemical formula, each of Y² and Y³ represents an alkylene group, n is an integer of 0 to 4, each of 4+n substituents represented by R⁸ to R¹² is an alkyl group and at least four of the alkyl groups have a phosphonic acid group.

10. The rinsing composition according to claim 9, characterized in that the alkylene group is a lower alkylene group having 1 to 4 carbon atoms.

11. The rinsing composition according to claim 9 or 10, characterized in that the alkyl group is a lower alkyl group having 1 to 4 carbon atoms.

12. The rinsing composition according to any one of claims 9 to 11, characterized in that all the alkyl groups have a phosphonic acid group.

13. The rinsing composition according to claim 9, characterized in that the chelating agent contains at least one compound selected from
ethylenediaminetetraethylenephosphonic acid,
ethylenediaminetetramethylenephosphonic acid,
diethylenetriaminepentaethylenephosphonic acid,
diethylenetriaminepentamethylenephosphonic acid,
triethylenetetraminehexaethylenephosphonic acid,

triethylenetetraminehexamethylenephosphonic acid,
propanediaminetetraethylenephosphonic acid and
propanediaminetetramethylenephosphonic acid, and ammonium
salts, potassium salts, sodium salts and lithium salts of
5 these acids.

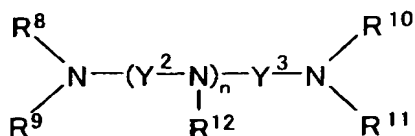
14. The rinsing composition according to any one of
claims 9 to 13, characterized in that the rinsing composition
has a pH of from 8 to 12.

15. The rinsing composition according to any one of
claims 9 to 14, characterized in that n in the chemical
formula is an integer of 0 to 2.

16. A process for rinsing a silicon wafer, the process
characterized by:

preparing a rinsing composition and
rinsing the surface of the silicon wafer by using the
rinsing composition,

wherein the rinsing composition includes a chelating
agent, an alkali compound and water, wherein the chelating
agent is an acid represented by the following chemical
formula:



or a salt thereof, and wherein in the chemical formula, each
of Y² and Y³ represents an alkylene group, n is an integer of
0 to 4, each of 4+n substituents represented by R⁸ to R¹² is an
alkyl group and at least four of the alkyl groups have a
phosphonic acid group.